



PATENT  
Customer No. 22,852  
Attorney Docket No. 08888.0500-00000

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: )  
Francoise LECLERCQ et al. ) Group Art Unit: 1635 \_\_\_\_\_  
Application No.: 09/783,981 ) Examiner: Janet L. Epps-Ford  
Filed: February 16, 2001 )  
For: PROCESS FOR PREPARING )  
FUNCTIONALIZED )  
POLYALKYLENEIMINES, )  
COMPOSITIONS CONTAINING )  
THEM AND USES THEREOF )

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**DECLARATION UNDER 37 C.F.R. § 1.132**

I, Jean Herscovici, Ph.D., do hereby make the following declaration:

1. I am a citizen of France, residing in Paris, France.
2. I graduated from "Université Paris VII" in 1979 with a Doctorat d' état (Ph.D.) degree in Physical Sciences.
3. I am a coinventor of U.S. Patent Application No. 09/783,981 ("the '981 application") filed February 16, 2001, which has a priority date of February 18, 2000, based on French Application No. 0002059.
4. At the time the invention claimed in the '981 application was made, I was Research Director UMR 7001 CNRS ENSCP Aventis. I have 28 years experience in

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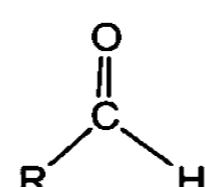
**Finnegan, Henderson, Farabow, Garret & Dunner, LLP**

chemistry with a background in organic synthesis and carbohydrate chemistry. I am the author of 45 publications and the inventor of 3 patents.

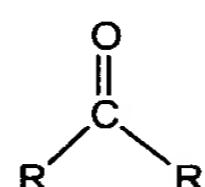
5. I understand that the U.S. Patent and Trademark Office asserts that one of skill in the art would have had a reasonable expectation of success in using the method described by Neidigh, K. A., Avery, M. A., Williamson, J. S., and Bhattacharyya, S. in Facile Preparation of N-Methyl Secondary Amines by Titanium(IV) Isopropoxide-Mediated Reductive Amination of Carbonyl Compounds, *J. Chem. Soc., Perkin Trans. 1*:2527-2531, 1998 ("Neidigh") to prepare the functionalized polyalkyleneimines claimed in the '981 application.

6. In my opinion, this is not correct. Neidigh discloses the preparation of N-methyl secondary amines from carbonyl compounds, i.e., aldehydes and ketones, not from hemiacetals as taught by the '981 application.

7. Aldehydes are compounds of the following general structure:

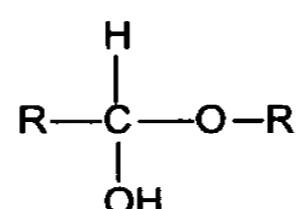


8. Ketones are compounds of the following general structure:



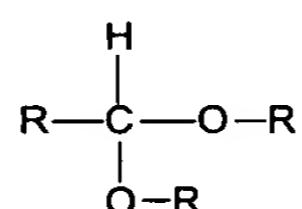
9. Both aldehydes and ketones are characterized by the presence of a carbonyl group, i.e., C=O, and it is the presence of this group that largely determines their chemistry. In fact, all of the examples provided in Neidigh involve the conversion of the carbonyl carbon to a secondary amine.

10. The general structure of a hemiacetal is:



Hemiacetals do not have a carbonyl group and for at least this reason, I would not have expected a hemiacetal, and in particular a polyhydroxylated hemiacetal (i.e., a carbohydrate), to participate in the reaction described by Neidigh.

11. In fact, Neidigh states that "[t]he reaction conditions have been successfully applied to carbonyl compounds containing acid sensitive groups such as acetals." See Neidigh at 2528, left column. Acetals have the following general structure:



12. The acetals to which Neidigh refers are substituents of the aldehyde's "R" group, not participants in the reaction. See *id.*, Table 1, entries 10 and 13. Thus, Neidigh discloses that acetals *are not* converted into amines under his reaction conditions.

13. Based on the disclosure of Neidigh, I would not have expected that hemiacetals, which like acetals lack a carbonyl group, would be converted into amines by the reaction disclosed in Neidigh.

14. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false

statements and the like so made are punishable by fine or imprisonment, or both, under  
Section 1001 of Title 18 of the United States Code, and that such willful false  
statements may jeopardize the validity of the application or any patent issuing thereon.

Dated:

11/12/03

By:

Jean Herscovici  
Jean Herscovici, Ph.D.